

WHAT IS CLAIMED IS:

1. An information processor for instructing a job processor to execute a job process, the information processor comprising:
 - 5 a selection unit for selecting one of a first signature key certified by a first certificate authority and a second signature key certified by a second certificate authority for signing instruction data having a process description for instructing a job process or data to be processed in a job process;
 - 10 a signing unit for signing the instruction data or the data to be processed using the signature key selected by the selection unit; and
 - 15 a transmitter unit for transmitting, to the job processor, the instruction data or the data to be processed signed by the signing unit.
2. An information processor according to Claim 1, wherein
 - the certificate authority certifying the first signature key is a certificate authority which certifies unspecified users and
 - 20 the certificate authority certifying the second signature key is a certificate authority which certifies specific users.
3. An information processor according to Claim 1, wherein
 - the selection unit selects one of the first and second signature
 - 25 keys based on an attribute of the job processor.
4. An information processor according to Claim 3, wherein
 - the attribute of the job processor is whether or not the job processor is located within a predetermined network.

5. An information processing method executed by an information processor for instructing a job processor to execute a job process, the method comprising the steps of;

5 selecting one of a first signature key certified by a first certificate authority and a second signature key certified by a second certificate authority for signing instruction data having a process description for instructing a job process or data to be processed in a job process;

10 electronically signing the instruction data or the data to be processed using the signature key selected the selection step;

 transmitting, to the job processor, the instruction data or the data to be processed which is electronically signed in the electronically signing step.

15 6. A job processor for executing a service in cooperation with other job processors according to job flow instruction data, the job processor comprising:

20 a key storage unit having separate signature keys, one for use inside of a network to which the job processor belongs and the other for use outside of the network;

 a receiver unit for receiving job flow instruction data which indicates a process instruction for each job processor and a next job processor for each job process;

25 a signature verification unit for verifying an electronic signature attached to the job flow instruction data received at the receiver unit;

 a processor unit for identifying, from the job flow instruction data, a process instruction the job processor should execute when

the verification by the signature verification unit is successful and for executing the process according to the process instruction;

an instruction data creation unit for creating output job flow instruction data to be transmitted to a next job processor based
5 on the received job flow instruction data when the process is executed by the processor unit;

a judging unit for judging whether or not the next job processor is a device within the network;

a signature processor unit for electronically signing the
10 output job flow instruction data using the signature key for the inside when the next job processor is a device within the network and using the signature key for the outside otherwise; and

a transmitter unit for transmitting the output job flow instruction data electronically signed by the signature processor
15 unit to the next job processor.

7. A job processor according to Claim 6, wherein

the judging unit judges whether or not the next job processor is a device within the network based on positional information of
20 the next job processor on the internet indicated in the job flow instruction data.

8. A method for processing job flow instruction data in a job processor for executing a service in cooperation with other job processors
25 according to the job flow instruction data, the method comprising the steps of:

receiving job flow instruction data which indicates a process instruction for each job processor and a next job processor for each job process;

verifying an electronic signature attached to the received
job flow instruction data;

identifying a process instruction which should be executed
by the job processor from the job flow instruction data when
5 verification is successful;

executing a process according to the identified process
instruction;

creating, when the process instruction is executed, output
job flow instruction data to be transmitted to the next job processor
10 based on the received job flow instruction data;

judging whether or not the next job processor is a device within
the network;

electronically signing the output job flow instruction data
using a signature key for the inside of the network to which the
15 job processor belongs when the next job processor is a device within
the network and a signature key for outside the network otherwise;
and

transmitting the electronically signed output job flow
instruction data to the next job processor.

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9. An instruction data creating device for creating job flow
instruction data which indicates a process instruction for each
job processor and a next job processor for each job process for
a system for realizing a service by sequentially sending the job
25 flow instruction data among the job processors and each job processor
sequentially executing the process instruction for the job processor,
the device comprising:

a key storage unit having a signature key for inside the network
to which the instruction data creating device belongs and a signature

key for outside the network;

a judgment unit for judging whether or not a job processor outside the network exists among the job processors for the service;

5 a signature processor unit for electronically signing the job flow instruction data using the signature for outside the network when the judgment unit judges that there is a device which is outside the network in the job processors for the service and using the signature for the inside otherwise; and

10 a transmitter unit for transmitting the job flow instruction data electronically signed by the signature processor unit to a first job processor among the job processors for the service.

10. An instruction data creating device according to Claim 9, wherein
15 the judgment unit judges whether or not the next job processor is within the network based on positional information of the next job processor on the Internet indicated in the job flow instruction data.

11. A method in which a computer system creates job flow instruction
20 data which indicates a process instruction for each job processor and a next job processor for each job processor for a system for realizing a service by sequentially sending the job flow instruction data among the job processors and each of the job processors sequentially executing the process instruction for the job processor,
25 the method comprising the steps of:

judging whether or not a job processor outside a network to which the computer system belongs exists among the job processors for the service;

electronically signing the job flow instruction data using

a signature key for the outside of the network when it is judged that there is a device which is outside the network in the job processors for the service and a signature key for the inside the network otherwise; and

5 transmitting the electronically signed job flow instruction data to a first job processor of the job processors for the service.

12. A proxy device provided between an internal network and an external network, for exchanging documents between a device on the internal network and a device on the external network, the proxy device
10 comprising:

 a first signature verification unit for verifying an electronic signature attached to a document transmitted from the device on the internal network to the device on the external network; and

15 a first signature conversion unit for, when it is determined in the verification by the first verification unit that the electronic signature attached to the document is signed using a signature key for the internal network, deleting the electronic signature from the document, re-attaching an electronic signature to the document
20 using a signature key of the proxy device for the external network; and

 a transmitter unit for transmitting the electronically signed document to the device on the external network.

25 13. A proxy device according to Claim 12, further comprising:

 a second signature verification unit for verifying an electronic signature attached to a document transmitted from a device on the external network to a device on the internal network; and

 a second signature conversion unit for deleting, when

verification by the second signature verification unit is successful,
the electronic signature from the document, re-attaching an
electronic signature to the document using a signature key of the
proxy device for the internal network; and

5 a transmitter unit for transmitting the electronically signed
document to the device on the internal network.

14. A method for exchanging, in a proxy device provided between
an internal network and an external network, documents between a
10 device on the internal network and a device on the external network,
the method comprising the steps of:

 verifying an electronic signature attached to a document
transmitted from a device on the internal network to a device on
the external network;

15 deleting the electronic signature from the document when it
is determined in the verification that the electronic signature
attached to the document is signed using a signature key for the
internal network;

 re-attaching an electronic signature to the document from which
20 the electronic signature has been deleted using a signature key
of the proxy device for the external network; and

 transmitting the document to which an electronic signature
is re-attached using the signature key for the external network
to the device on the external network.

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15. A proxy device provided between an internal network and an external
network for exchanging documents between a device on the internal
network and a device on the external network, the proxy device
comprising:

a signature verification unit for verifying an electronic signature attached to a document transmitted from a device on the external network to a device on the internal network; and

a signature conversion unit for deleting, when verification
5 by the signature verification unit is successful, the electronic signature from the document, re-attaching an electronic signature to the document using a signature key of the proxy device for the internal network; and

a transmitter unit for transmitting the document to the device
10 on the internal network.

16. A method for changing, in a proxy device provided between an internal network and an external network, documents between a device on the internal network and a device on the external network, the
15 method comprising the steps of:

verifying an electronic signature attached to a document transmitted from a device on the external network to a device on the internal network;

deleting the electronic signature from the document when the
20 verification is successful;

re-attaching an electronic signature to the document from which the electronic signature is deleted using a signature key of the proxy device for the internal network; and

transmitting the document having an electronic signature
25 re-attached using the signature key for the internal network to the device on the internal network.